

Application No.: 10/618,751

(PATENT)

IBM Docket No.: YOR920020192US2

(CBLH Docket No.: 20140-00296-US2)

REMARKS

Claims 1, 4-9, and 20-22 are now in the application.

Claims 1, 4, 6, 8, 20-22 were rejected under 35 USC 102(b) as being anticipated by US Patent 6,283,829 to Molnar. Claims 5 and 7 were rejected under 35 USC 103(a) as being obvious over US Patent 6,283,829 to Molnar.

Molnar fails to anticipate or render obvious the above claims. The present application is concerned with improving the planarizing of surfaces employing an abrasive containing composition. According to the present invention friction that develops during polishing between a polishing pad and a wafer is reduced by incorporating solid lubricant particles in the abrasive containing composition. The present invention makes possible increasing the topological selectivity of the planarizing/polishing. The present invention also makes possible the reduction of wafer delamination (peeling) due to planarization/polishing, which is particularly important in planarizing conductor lines embedded in low-k (i.e. low dielectric constant) insulators or porous low-k insulators or planarizing the insulators themselves.

Molnar fails to anticipate the present invention since, among other things, Molnar deals with using polishing pads that require abrasive particles contained therein (e.g fixed abrasive finishing elements). On the other hand, the process of this invention can be practiced and is preferably practiced using pads such as polyurethane pads that do not require abrasive particles. As recited in the present claims, the polishing compositions require the presence of abrasive particles. Molnar relates to fixed abrasive finishing elements which are fundamentally different from the processes of the present invention that require polishing slurries having abrasives contained therein. Along these lines, see US Patent 5,958,794 to Bruxourt (copy previously submitted) that discusses differences between fixed abrasive articles as contrasted to having the abrasives in the slurry.

Moreover, Molnar does not specify any amount of lubricant to be used except that "A lubricating aid dispersed in a minor amount of organic synthetic polymer" (see col. 34, lines 59 and 60). The above claims recite that the amount of the lubricant particles is about 0.3 to 10% by weight. There does not exist the remotest suggestion of these amounts in Molnar. Disregarding an explicit claim recitation is improper.

Application No.: 10/618,751

(PATENT)

IBM Docket No.: YOR920020192US2

(CBLH Docket No.: 20140-00296-US2)

Also, Molnar does not anticipate the present claims since Molnar prefers using slurries that are free from abrasive particles, suggests using liquid or solid lubricants and suggests adding the lubricant to the polishing slurry or to the fixed abrasive finishing element. Accordingly, to arrive at the present invention one would have to make fortuitous selections among a number of possible combinations.

Molnar fails to anticipate the present invention since, among other things, Molar fails to disclose the claimed amount of lubricant particles. Anticipation requires the disclosure, in a prior art reference, of each and every recitation as set forth in the claims. See *Titanium Metals Corp. v. Banner*, 227 USPQ 773 (Fed. Cir. 1985), *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 1 USPQ2d 1081 (Fed. Cir. 1986), and *Akzo N.V. v. U.S. International Trade Commissioner*, 1 USPQ2d 1241 (Fed. Cir. 1986). Each and every claim recitation must be considered. See *Pac-Tec, Inc. v. Amerace Corp.* 14 USPQ2d 1871 (Fed. Cir. 1990) cert denied 502 US808 1991.

There must be no difference between the claimed invention and reference disclosure for an anticipation rejection under 35 U.S.C. 102. See *Scripps Clinic and Research Foundation v. Genetech, Inc.* 18 USPQ2d 1001 (CAFC 1991) and *Studiengesellschaft Kohle GmbH v. Dart Industries*, 220 USPQ 841 (CAFC 1984).

The law is well settled that claiming of a more specific combination within a broader group of possibilities avoids a lack of novelty rejection. The test for anticipation is whether the claims read on the prior art disclosure, not on what the references broadly teach.

For example, see *Akzo N.V. v. U.S. International Trade Commissioner* 1 USPQ2d 1241 (Fed. Cir. 1986). In *Akzo*, the court found that no anticipation exists when one would have had to "randomly pick and choose among a number of different polyamides, a plurality of solvents and a range of inherent viscosities" to reach the claimed invention.

Also see *In re Kollman et al.* 201 USPQ 193 (CCPA-1979) wherein the court held that the prior art generic disclosure contains "no suggestion of the required FENAC/diphenyl ether ratio".

In Rem-Cru Titanium v. Watson 112 USPQ 88 (D.D.C-1956), the prior art showed alloys having broad ranges which included the claimed ranges. However, the prior art did not explicitly disclose the more limited claimed ranges or alloys having the characteristics of the claimed alloy. Accordingly, the court held the claims to be allowable. For a similar factual pattern and same

Application No.: 10/618,751

(PATENT)

IBM Docket No.: YOR920020192US2

(CBLH Docket No.: 20140-00296-US2)

holding, please see *Becket v. Coe* (CA, Dc 1938) 38 USPQ2d and *Tarak v. Watson* (DC-DC 1954) 103 USPQ 78.

In addition Molnar does render obvious the use of a solid lubricant in the compositions to which the present invention is directed, since Molnar, suggests the use of lubricants in fixed abrasive finishing pads in order to reduce the breaking away of abrasive particles from the fixed abrasive pad (see col. 9, lines 38-41 and col. 30, lines 43-45). Therefore no motivation exists to employ a solid lubricant wherein the abrasive particles are already contained in the polishing composition.

Claim 9 was rejected under 35 USC 103(a) as being unpatentable over U.S. Patent 6,283,829 to Molnar in view of Patent Publication 2003/0211743 to Chang et al. Chang et al. was merely relied upon for disclosure of adding a surfactant to a slurry for CMP applications. Chang fails to overcome the above discussed deficiencies of Molnar with respect to rendering unpatentable the present claims. Accordingly, claim 9 is patentable for at least those reasons as to why claim 1 is patentable.

Concerning obviousness, *Graham V. John Deere*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966) outlines the approach that must be taken when determining whether an invention is obvious. In *Graham*, the Court stated that a patent may not be obtained if the subject matter would have been obvious at the time the invention was made to a person having ordinary skill in the art, but emphasized that nonobviousness must be determined in the light of inquiry, not quality. Approached in this light, §103 permits, when followed realistically, a more practical test of patentability. In accordance with *Graham*, three inquiries must be made in determining whether an invention is obvious:

- (1) The scope and content of the prior art are to be determined.
- (2) The difference between the prior art and the claims at issue are to be ascertained.
- (3) The level of ordinary skill in the pertinent art is resolved.

Against this background, the obviousness or nonobviousness of the subject matter is determined. Secondary considerations, such as commercial success, long felt but unsolved needs, failure of others, etc., can be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

Application No.: 10/618,751

(PATENT)

IBM Docket No.: YOR920020192US2
(CBLH Docket No.: 20140-00296-US2)

In conjunction with interpreting 35 U.S.C. §103 under *Graham*, the initial burden is on the Patent Office to provide some suggestion of the desirability of doing what the inventor did, i.e. the Examiner must establish a *prima facie* case of obviousness. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention, or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

To establish a *prima facie* case of obviousness, three basic criteria must be met:

1. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference.
2. There must be a reasonable expectation of success.
3. The prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion the reasonable expectation of success must both be found in the prior art and not based on Applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q. 2d 1438 (Fed. Cir.1991). See MPEP § 2143-§2143.03 for decisions pertinent to each of these criteria.

The discussion in *In re Kotzab*, 55 U.S.P.Q. 2d 1313 (Fed. Cir. 2000) at page 1317 is also relevant wherein the Court stated:

A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided by the prior art references and the then-accepted wisdom in the field. See *Dembiczak*, 175 F.3d at 990, 50 USPQ2d at 1617. Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher."¹ *Id.* (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.* 721 F.2d 1540, 1553, 220 USPQ 303,313 (Fed. Cir.1983).

Accordingly, the mere fact that cited art may be modified in the manner suggested in the Office Action does not make this modification obvious, unless the cited art suggest the desirability

Application No.: 10/618,751

(PATENT)

IBM Docket No.: YOR920020192US2
(CBLH Docket No.: 20140-00296-US2)

of the modification. No such suggestion appears in the cited art in this matter. The Examiner's attention is kindly directed to *In re Lee* 61 USPQ2d 1430 (Fed. Cir. 2002) *In re Dembiczak et al.* 50 USPQ2d. 1614 (Fed. Cir. 1999), *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), *In re Laskowski*, 10 USPQ2d. 1397 (Fed. Cir. 1989) and *In re Fritch*, 23, USPQ2d. 1780 (Fed. Cir. 1992).

In *Dembiczak et al.*, *supra*, the Court at 1617 stated: "Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. See, e.g., *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d. 1340, 1352, 48 USPQ2d. 1225, 1232 (Fed. Cir. 1998) (describing 'teaching or suggestion motivation [to combine]' as in 'essential evidentiary component of an obviousness holding'), *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d. 1453, 1459 (Fed. Cir. 1998) ('the Board must identify specifically...the reasons one of ordinary skill in the art would have been motivated to select the references and combine them');..."

Also, the cited art lacks the necessary direction or incentive to those of ordinary skill in the art to render the rejection under 35 USC 103 sustainable. The cited art fails to provide the cited degree of predictability of success of achieving the properties attainable by the present invention needed to sustain a rejection under 35 USC 103. See *Diversitech Corp. v. Century Steps, Inc.* 7 USPQ2d 1315 (Fed. Cir. 1988), *In re Mercier*, 185 USPQ 774 (CCPA 1975) and *In re Naylor*, 152 USPQ 106 (CCPA 1966).

Moreover, the properties of the subject matter and improvements which are inherent in the claimed subject matter and disclosed in the specification are to be considered when evaluating the question of obviousness under 35 USC 103. See *Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 USPQ2d. 1923 (Fed. Cir. 1990), *In re Antonie*, 195, USPQ 6 (CCPA 1977), *In re Estes*, 164 USPQ 519 (CCPA 1970), and *In re Papesch*, 137 USPQ 43 (CCPA 1963).

No property can be ignored in determining patentability and comparing the claimed invention to the cited art. Along these lines, see *In re Papesch*, *supra*, *In re Burt et al.*, 148 USPQ 548 (CCPA 1966), *In re Ward*, 141 USPQ 227 (CCPA 1964), and *In re Cescon*, 177 USPQ 264 (CCPA 1973).

In view of the above, reconsideration and allowance are, therefore, respectively solicited.

Application No.: 10/618,751

(PATENT)

IBM Docket No.: YOR920020192US2
(CBLH Docket No.: 20140-00296-US2)

In the event that the Examiner believes an interview might serve to advance the prosecution of this application in any way, the undersigned attorney is available at the telephone number noted below. Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-0510, under Order No. 20140-00296-US2 from which the undersigned is authorized to draw.

Dated: 9-30-05

Respectfully submitted,

By 

Burton A. Amernick

Registration No.: 24,852

CONNOLLY BOVE LODGE & HUTZ LLP

1990 M Street, N.W., Suite 800

Washington, DC 20036-3425

(202) 331-7111

(202) 293-6229 (Fax)

Attorney for Applicant